REMARKS

This is responsive to the Office Action mailed on June 27, 2006. Claims 1-14 were pending. Claims 6, 9, 10 and 13 were withdrawn by the Examiner. Therefore, claims 1-5, 7, 8, 11, 12 and 14 are now pending. No new matter has been added.

Election

Applicant affirms of the election of Group II and acknowledges the rejoinder of Groups I and II are drawn to autoantibodies against SEQ ID NOs: 4 and 5.

Objections to the Specification

The Examiner objected to the specification for the use of the phrase "inter alia" in the Abstract. Applicant respectfully disagrees that the phrase is improperly used in the application, since the phrase is a Latin term and not exclusively used in legal documents (although a patent application is a legal document). Nevertheless, Applicant has amended the Abstract to substitute the English language meaning of this phrase, "among other things".

The Examiner objected to the disclosure because it did not reflect the status of the parent application serial number 09/489,101. Applicant has amended the appropriate paragraph to indicate the current status of this application.

Finally, Applicant has corrected the grammatical error on page 21, line 31.

Accordingly, Applicant respectfully requests withdrawal of the objections to the specification.

Rejections Under 35 USC § 112, First Paragraph

1. The Examiner rejected claims 1-5, 7, 8, 11, 12, and 14 as lacking enablement. The Examiner stated that the claims are enabled for determining onset of cancer, but are not enabled for determining progression or regression of cancer. Applicant respectfully requests reconsideration.

There are two aspects to this rejection. First, in the paragraph spanning pages 7-8 of the Office Action, the Examiner stated that one cannot determine anything about the timing of antigen expression or of the involvement of antigen expression with regression or progression by measuring the antibodies against the antigen.

Applicant notes that the Vural et al. paper (Cancer 2005; 103:2575–2583), describing certain aspects of SOX and ZIC antibodies in SCLC, correlated the presence of antibodies with better cancer prognosis. In particular, in the paragraph bridging pages 2577-2578, Vural et al. state that patients with one or both of SOX1 and ZIC2 antibodies have limited stage disease and significantly better response rates to therapy.

In addition, the Vural et al. paper supports determination of prognosis based on these antibodies. In particular, Table 3, Fig. 3 and Fig. 4 show the correlation of the presence of the antibodies and time to disease progression.

These data clearly supports the use of the claimed methods by the person of ordinary skill in the art. As concluded by the authors of the Vural et al. article, "All these observations indicate that seropositivity to SOX Group B and ZIC2 is associated with a better clinical outcome." p. 2581.

Second, the Examiner stated that the specification does not provide guidance for correlating level of SOX1 or ZIC2 antibodies with patient prognosis. The Examiner provides a lengthy description of the requirement to validate cancer markers (see last paragraph on page 8 and page 9). It is Applicant's position that this description in fact shows that the skilled person routinely performs validation studies, and thus any experimentation required for validation cannot be undue experimentation.

The Examiner also indicated that measuring the titer of antibodies as described in the specification would not necessarily be indicative of the level of antibodies present (see page 8, first full paragraph). Applicant does not agree with this statement, but respectfully notes that the titer of antibodies is indicative of certain clinical parameters such as disease state, etc. See the Vural et al. article, in which the authors stated that "These differences [e.g., better response to therapy, longer survival, improved time to disease progression] were generally more pronounced in patients with high-titer antibodies." See p. 2581, left column, first full paragraph.

In view of the arguments presented above, Applicant respectfully requests withdrawal of the rejection of claims 1-5, 7, 8, 11, 12, and 14 under 35 USC § 112, first paragraph.

2. The Examiner rejected claims 1-5, 7, 8 and 11 as lacking enablement. Applicant respectfully requests reconsideration.

In this second enablement rejection, the Examiner states that the claims are enabled for determining SCLC, but are not enabled for determining any type of cancer. The reasoning of the Examiner is that different cancers have different etiologies, mechanisms, etc.

According to In re Wands, a specification must provide sufficient guidance such that one of ordinary skill in the art is not required to engage in undue experimentation to practice the invention. In re Wands, 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988).

Applicant asserts that the experimentation required to practice the claimed invention in any cancer is routine because all of the methods needed to practice the invention are well known to the skilled person, and are described further in the specification, including in the working examples. The critical piece of information, i.e., that presence of these antibodies indicates the presence of cancer and/or provides an indication of prognosis, progression, etc., is provided by Applicant in the specification.

Example 3 provides an example of expression of these gene products in cancers other than SCLC, demonstrating expression of ZIC2 in a variety of cancer cell lines and tumor samples (cell lines: non-small cell lung tumor and melanoma; tumor tissues: melanoma, colon cancer, breast cancer, head and neck cancer, lung cancer, transitional cancer, leiomyosarcoma and synovial sarcoma). Given the results with SOX and ZIC2 gene expression in SCLC cells and tumor samples and antibodies to these proteins in cancer sera of SCLC patients, the person of skill in the art is provided with a clear direction and an expectation of success to determine the presence of antibodies to these proteins in sera of other cancer patients.

Moreover, the experimentation required to practice this aspect of the invention can be done rapidly and routinely using standard immunoassays of sera, including stored sera samples, and including automated/high-throughput methods. Exemplary methods were described in the specification and in the working examples. Thus there is a significant amount of guidance provided in the specification.

Further, the experimentation required to practice this aspect of the invention can be conducted by a competent technician (i.e., having a level of skill equal to or less than the person of ordinary skill in the art). Exercise of routine experimentation to practice the invention is not sufficient for an enablement rejection. In re Wands, at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988) (citing In re Angstadt, 537 F.2d 489, 502-504, 190 USPQ 214, 217-219 (CCPA 1976)) (a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance). See also Ajinomoto Co. v.

Archer-Daniels Midland Co., 228 F. 3d 1338, 1345 (Fed. Cir. 2000) (no undue experimentation where conventional and well-known genetic engineering techniques used).

Therefore, the application of the claimed methods to other cancers might require some amount of experimentation, but such experimentation is not undue if it is the sort practiced in the art. This is analogous to the situation in Wands, in which monoclonal antibody-secreting hybridomas were screened. In re Wands, 858 F.2d 731(Fed. Cir. 1988). Two of the factors used by the court to decide in favor of enablement in the Wands case are equally applicable here: all of the methods needed to practice the claimed invention were known, and there was a high level of skill in the art. As explained above, Applicant asserts that sufficient guidance was provided to guide the skilled artisan to the use of the claimed methods in cancers other than SCLC.

Therefore, one of ordinary skill in the art would not be required to exercise undue experimentation in practicing the claimed invention in other cancers.

Accordingly, Applicant respectfully requests the withdrawal of the rejection of claims 1-5, 7, 8, 11 and 12 under 35 USC § 112, first paragraph.

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

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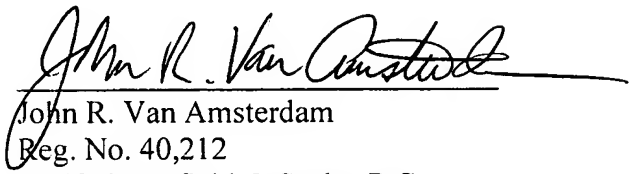
Docket No. L0461.70073US01
Date: October 26, 2006
X10/27/06x

Notwithstanding any statements by the Applicant, the Examiner is urged to form his or her own conclusion regarding the relevance of the cited information.

An early and favorable action is hereby requested.

Respectfully submitted,

By: 

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Docket No.: L0461.70073US0
Date: October 26, 2006
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